

FUEL AND SOLAR COOKER IMPACT IN YA NA
GDUNG VILLAGE, GCAN TSHA COUNTY, MTSHO
SNGON (QINGHAI) PROVINCE

Rdo rje don 'grub (Duoji eduanzhi 多杰端智)

ABSTRACT

Eight accounts and discussion detail challenges faced by Ya na gdung (Yanadong) Tibetan and Muslim fellow villagers in acquiring fossil fuels, related concerns, and provide historical perspective on local fuel collection. Solar cookers have alleviated certain challenges of fuel collection, reduced exposure to smoke-filled kitchens, and provided other benefits; however, solar cooking technology needs to be further developed to increase cooker portability and decrease heating time.

KEY WORDS

fuel, wood, straw, dung, coal, stove, solar cooker, fire

Account One¹

January 1975. Hrang gzhi ma (b. 1942) woke up at the rooster's first call. In keeping with her usual routine, she automatically sat up and pulled on her ragged Tibetan robe as moonlight shone through a small hole in the ceiling and the wood-framed window next to her. She folded her quilt and crawled to the edge of the bed. A single concrete step was halfway to the ground.

Frigid air struck her, sending shivers through her body. However, she was pleased to see a few twinkling stars, for they foreshadowed a good day. She poured a scoop of cold water into a nearby basin and washed her face. Making her way to the storage room, she lit an oil lamp on a big cutting board with the aid of light passing through small paper-colored squares on the window. A piece of clear plastic bag was plastered over it, which occasionally fluttered in the icy breeze.

She poured out dough she had mixed the night before in a wood bucket onto the cutting board and kneaded it, then went to the main room. Three pots sat on a single stove. The fireplace was underneath. The stove was attached to the *heedze*² on which her husband and

¹ Rdo rje don 'grub (b. 1988) is a native of Ya na gdung Village. Information about the village and for the accounts was gathered through informal interviews during the summer of 2010.

² Blo brtan rdo rje and Stuart (2008:26) write:

'Heezee' is a Tibetan word that lacks an accurate standard written form. Today, it is often written incorrectly in literary Tibetan as '*tsha thab*' that translates as 'hot stove.' This is incorrect because the *heezee* is not a hot stove, rather, it is a hollow platform made of stones with a thin layer of dry, hard earth on top. Coals and smoldering straw and grain husks are placed inside to heat it. Felt is spread atop the

five children still slept. A short wall separated the edge the stove and the *heedze*.

She pulled the ashes and unburned soot in the hearth to the open end and shoveled them into a trash container, then disposed of them in the latrine next to the gate. On her way back inside, she picked up a medium-sized handmade wood basket of dried straw and a small bundle of wood, and put them to the right of the stove. She replaced the center pot with a shallow pot for baking bread, emptied water in the right pot into the left pot, and half-filled the right pot with fresh water from the vat standing against the wood wall that stretched halfway across the room in the middle. In front was the storage room.

She put a small bunch of straw into the stove, groped for a match, found one in the dim moonlight, struck it, and lit the straw. The straw quickly caught fire, lighting the room. Now and again she fed the fire with the same amount of straw. After about fifteen minutes she stood up and pushed the middle pot lid to one side, put her palm over the pot bottom, and checked the heat. She added more straw, went to the storage room, carefully put the dough on a small cutting board, and returned to the hearth, where she placed the thin dough in the heated middle pot. Next, she returned to the storeroom to prepare more dough, and then came back to the pot to turn the bread,³ not forgetting to feed the fire. She repeated this tiring task four times. Swirls of steam rose from the right pot. With a wood scoop she filled two thermoses with hot water and added more cold water to the pot. She thus had finished the first part of her day's work.

She took a bowl from the second shelf on the

heezee, which is where family members sleep and important guests eat. Chinese: *kang*.

³ Locally called *jara* or *sangja* (no standard written Tibetan form). The pot is heated first. When hot enough, the dough is placed inside. Dough cooked in the same way but with oil in the bottom is called *yije* (no standard written Tibetan form).

wood wall and sat by the stove before filling the bowl with just-boiled water from a thermos and put the bread she had just cooked on a wood plate. She quickly finished her breakfast of hot water and bread, sitting alone by the hearth as dancing flames provided light. The flames went out before she finished breakfast. As she put the remaining bread in a wood cabinet, a sound caught her attention. Closing the cabinet doors, she detected a second sound from the roof. It was her friends' signal. They had agreed to toss pebbles on each other's roof. She quickened her pace, wrapped a piece of bread in her scarf, picked up a rope and sharpened axe she had prepared the night before, put them over her shoulder, and walked to the gate. She noted three figures in front of her. She joined them and they set off for their next friend's home. On the way they found three of the four remaining friends from the same village sitting, waiting for them. When they reached their remaining friend's home, a woman threw a pebble onto the roof. They waited. Hearing no sound, she threw another pebble. No response. One woman groaned, "What's she doing? Is she up?" No reply. Everyone was anxious. One woman quietly approached the wood door, peeked through a crack, and saw a dim light. This calmed her only a bit. She reported this information to the group.

One woman hopefully suggested, "I think she'll come soon. Let's wait a bit longer." Everyone agreed. However, still no approaching sounds came. They were anxious to set off, but knew they could not for they had promised the day before that the earliest one would call the next one, and so on, and they would not leave until they had all gathered. Breaking such a promise might bring bad luck. It was hard to know what to do next.

Silent and at a loss, they heard a baby's cry. It was their friend's child. This worried them for it meant their friend could not join them until the baby went back to sleep. They couldn't throw more pebbles, and she couldn't make a sound. They understood each other.

Their friend's door soon abruptly creaked open.

The young mother appeared. Cautiously pulling the door behind her, she trotted towards them.

“Why were you late?” demanded one friend.

“I heard you, but how could I reply? I was nursing my baby,” she said guiltily. Then they marched toward the fuel site, speaking only occasionally and in whispers, not wanting to disturb wandering dogs that might attack.

It was a long, hard, nine-kilometer journey. They crossed four villages and then walked through a long valley. They were silent while in the villages, fearing stray dogs would hear. As soon as they were beyond the last village, energetic conversation burst forth nonstop as if they intended to wake up the world. The sound of their voices matched the rhythmic splashing of flowing water nearby.

They were all married and each had several children. They were also close friends and some were related, making the bonds even closer. They ranged in age from thirty to thirty-five. They reached the fuel site as dawn was about to break. It had taken them four hours to arrive.

As if instructed beforehand, each quickly began cutting bushes with their axes. Halfway through, snow began falling and gradually grew heavier. It was freezing cold. It became dangerously slippery and soon everything was covered with snow. They wanted to stop and go home, but could not. They were determined to return with the usual weight on their backs. They had made a long journey and going back with little fuel was a waste of time and effort. They continued cutting wood greedily, hoping the snow would stop. It did not.

There was no shelter and they had brought only ropes, axes, and provisions. Whatever they brought had to be hauled back along with the wood.

They removed their cotton-lined black shoes, because the soles were smooth and made footing unstable. Their feet were numb, but they made good progress. Without resting or a word to each other, they cut a huge pile of wood and began to tie it into bundles. Mtsho mo rgyal finished first and shouted, “Hey, I have seven bundles.

Are you finished? If not, one of you can have my remaining bundle.” She looked around and saw everybody had six to seven bundles, except for Sgrol mtsho, who had only five. Mtsho mo rgyal kindly tied the bundle and offered it to her.

Sgrol mtsho accepted it with a smile of thankfulness and added it to her bundles. They did not have their usual simple meal of bread and water to restore their energy. Instead they laid out their ropes, placed the tied bundles atop, and bound the ropes around the bundles, squatted in front of the wood, held the rope in their hands firmly, stood up, and balanced themselves.

The trip back to the village was hard. Each woman had six or seven bundles of wood that weighed about fifty kilograms, which was nearly the same as Hrang gzhi ma's body weight. Aware that talking consumed energy, they said little, except when they stopped to rest. They got home about five hours later.

Hrang gzhi ma was exhausted. Releasing her ropes, the wood fell to the ground, scattering snow. Droplets of sweat shone on her tanned forehead despite the cold as she stretched her back, and took a deep breath. She brushed away the sweat with stiff hands. The work was still unfinished. She stared at the stacked family wood supply in front of her, taller than she was. A quick satisfied smile surfaced on her tired face. Carefully, but energetically, she threw the bundles of wood she had collected that day on top of them, making the pile even taller.

SOLAR COOKERS IN YA NA GDUNG VILLAGE

Ya na gdung Village, Snang ra Township, Gcan tsha County, Rma lho Tibetan Autonomous Prefecture, Mtsho sngon (Qinghai Province) is six kilometers south of the county seat, situated at the foot of a mountain range and on the banks of the Yellow River. It has a total of seventy-two households, of which twelve are Hui and the remainder are Tibetan. The Tibetan and Hui villagers have a close relationship despite

religious differences. This agricultural community mainly cultivates wheat, the source of staple food (noodles and bread). Its mild climate enables villagers to cultivate chili, cabbage, turnips, beans, peas, carrots, corn, chives, green onions, garlic, potatoes, tomatoes, radishes, apples, pears, peaches, apricots, watermelons, and grapes that are secondary sources of income. Villagers also work at town and city construction sites and collect and sell medicinal herbs to generate income, leaving their children in the care of their grandparents.

In about 2000, almost every household owned a mule and a donkey that were used to plow fields and transport agricultural goods. However, owing to increased income, tractors have replaced mules and donkeys. The absence of mules and donkeys has also meant the dung they produced can no longer be collected for fuel use.

Almost every Tibetan family raises at least one pig that is butchered in late autumn to provide food for winter. Some families raise two pigs and sell one to buy chemical fertilizer, pesticide, detergent, salt, tea, sugar, coal, cloth, clothes, shoes, liquor and beer, and so on.

A six-year local primary school is three kilometers away in Tshag rgyal Village, where children from ten surrounding villages study. After graduating, students may attend either of two six-year nationalities middle schools in Gcan tsha County Town—Mar khu thang.

About ten years ago, the village was ordered to stop collecting firewood from the mountain forest mentioned in Account One. This has encouraged families to plant trees that can be easily watered. The land the trees were planted on can later be claimed by the planters. In late autumn, a family cuts branches from their trees, which are now a major fuel source. The number of trees an individual household has varies from hundreds to none. Families with trees generally do not collect dung for fuel in the grasslands of Gcan tsha thang Township, Gcan tsha County, Rma lho Prefecture, which is about twenty kilometers away. Villagers who do go, use a tractor pulling a trailer, which they fill with dung and

then return home.

In summer, families burn wheat straw produced from the harvest, saving wood for winter. The amount a family collects depends on the amount of cultivated land they own.

Coal began to be used in the late 1980s. For years, poverty meant only a few better-off families bought it. Those who could afford coal soon bought metal stoves, which are more efficient in burning coal and are more convenient than the traditional stoves. Coal prices have risen dramatically and in 2009, a ton of coal cost 450 RMB. Villagers buy coal that comes from Datong Hui and Tu Autonomous County, Ziling (Xining City), Qinghai Province in the county town from Chinese, Muslims, and Tibetan retailers and transport it by tractor-trailer back home.

The traditional adobe stove remains prevalent because of the availability of straw and continuing access to wood. The stove accommodates two to three pots (not kettles) that are used to boil water. Kettles are never used, except during the New Year period. An electric bellows is now used by most households to increase cooking temperature.

When mules and donkeys were common, a small portion of the straw produced from the wheat harvest fed them. However, as livestock have nearly disappeared in the village, nearly all straw is now burned for cooking. Certain families also sell straw to nomads. A pile of straw from two *mu* (0.133 hectares) of land can be sold for about 200 RMB. Because of the few livestock in the village, local collection of dung has nearly ceased, other than the collection in the herding area just mentioned. Straw burns easily, but only for a short time and must be constantly added. Wood burns for a longer time and does not need to be constantly added to the fire.⁴

⁴ A rare example of an 'outside' fuel source involved the renovation of Ya na gdung Temple in early 2010, producing a large quantity of wood chips and shavings. The village leader called a meeting at the temple to discuss how shavings and chips should be divided among village households. At

In 2010, no village household used bottled gas for cooking and heating water. A few households very occasionally used electric cookers for the same purpose.

The first solar cooker in the village arrived in 1996, which a family bought for 270 RMB. A parabolic solar cooker,⁵ it was designed and manufactured by Muslims in Hualong Hui Autonomous County, Haidong Region, Mtsho sngon Province. The family used it for about ten years before it was no longer usable.

A study of solar cookers by Cheng (2009) identified various types used in China including cast iron solar cookers, complex magnesium solar cookers, glass fiber strengthened solar cookers, concrete solar cookers, box focusing solar cookers, Fresnel solar cookers, heat-box cookers, and indoor solar cookers. The government has periodically distributed solar cookers to villages beginning around 2005. The plaster bodies of some government-sponsored solar cookers quickly flake away from rain and sunlight stress, resulting in mirrors dropping off. Such quality issues are illustrated in the following account:

Account Two

Snying lo rgyal had a solar cooker provided by the local government. After about six months, mirrors glued to the surface of the body began to fall off when drops of boiling water struck them. The solar cooker body, made of plaster, also began to flake away. Before a year passed, the solar cooker was basically unusable. Such quality issues led

least one representative from each non-Muslim family attended. After much discussion, it was decided that each family would receive a measure of wood chips and shavings weighing thirty-five to forty kilograms.

⁵ See Figure One for an example of a parabolic cooker in Ya na gdung Village. All solar cookers in this village are of the parabolic type. Villagers are unfamiliar with any other type.

some families to sell them at around ten RMB each.

Most villagers are illiterate and village students have never had access to field courses in science or technology, consequently their understanding in these fields is limited, and translates into being easily satisfied with the current solar cooker design. In 2010, about ninety percent of village households had a solar cooker. All the cookers were parabolic and most featured a body and stand made of concrete (see Figure One). Villagers comment that drawbacks to the current design include its heaviness and mobility difficulties. An interviewee said two strong men are needed to move the solar cooker.

The solar cooker is particularly appreciated from May to late October, when heating for warmth is not required. During this period, optimal solar cooker use time may average six to eight hours daily. The exact time of use is also influenced by the amount of shade the solar cooker is subject to and cloud cover. Solar cookers have more hours of use if put on a roof or in an open area with about five meters of clearance on all sides. Rammed adobe walls that surround homes are three to four meters in height and negatively influence solar cooker use.

Account Three

22 August 2010. Gsang bdag (b. 1947) is the head of a family of seven. He and his wife (b. 1950) are both illiterate. They care for three grandchildren. Two of his grandchildren attend the local primary school and one attends a nationalities middle school in the county town.

Gsang bdag and his family generate about 6,000-7,000 RMB annually through sale of agricultural goods and work at construction sites. The income cannot support the family. He borrows money from the bank. Yearly, he spends 1,350 RMB on three tons of coal. His family also burns straw, firewood, and dung, the latter being collected from

the grasslands of Gcan tsha thang. They use their tractor and trailer and travel with other families in a group for safety concerns. Collecting dung is difficult as it is collected from a distant area villagers are not very familiar with. Two days are spent on the trip. They go only once a year.

The smoky kitchen results in tear-filled eyes. The lungs are also negatively affected. The solar cooker is used three to six hours a day and saves between twenty and forty kilograms of fuel daily in summer, and about two bricks of coal a day in winter. The savings on coal expense is about eight RMB a day in winter. No accidents have happened with the solar cooker.

The solar cooker allows the family to heat more water compared to the time without a solar cooker. The hot water is used to shampoo, wash clothes, and mix with pig food, which results in increased weight gain.

Account Four

23 August 2010. Nor bud dbang Idan (b. 1973) is the head of a family of six. He dropped out of school after he finished the first year of junior middle school. He is the only literate person in his family. The only income is through selling agricultural goods. He cultivated five *mu* (0.333 hectares) of wheat, two *mu* (0.133 hectares) of rapeseed, and one *mu* (0.066 hectares) of barley in 2009. He built a house in 2009 toward which the government contributed 24,000 RMB.

He leads a simple life. He has no debt and no one owes him anything. He bought two tons of coal for 480 RMB per ton (125 bricks of coal per ton) in 2009. His family also burns straw, wood, and dung. Before receiving the current solar cooker, his family had two solar cookers in succession. Their poor design and poor quality meant they were soon not used. Their current solar cooker came from a Canada Fund sponsored project that placed about thirty-five good quality cookers in village homes in 2007.

Recipient local families each contributed fifty RMB toward the purchase price of 180 RMB.

The solar cooker is used to cook everything except steamed bread, because the pot should be heated nonstop for fifteen minutes. However, with the solar cooker, clouds prevent constant heat. As the power of sunlight varies seasonally, the amount of fuel saved by the solar cooker also varies.

The solar cooker saves a total of seventy to eighty kilograms of fuel in summer (May to October). In winter (December to late March), he estimated that one brick of coal is saved daily. No accidents related to solar cookers have happened and no difference in food cooked on a solar cooker and cooked otherwise is detectable. The solar cooker is used for a maximum of seven hours in summer and four hours per day in winter.

He suggested that if the cooker shape was more rounded and if it were portable, use of solar cookers would be easier and more efficient.

Account Five

Rdor rje (b. 1967) is the head of a family of six that includes his father, wife, and three children. He dropped out after finishing the first year of junior middle school. Two children attend the local primary school and the oldest one attends a nationalities middle school in the county town. His family only owns 2.2 *mu* (0.146 hectares) of land, which is barely enough to support his family. A major source of income is the collection and sale of medicinal herbs in summer, which entails traveling to Yu shul Tibetan Autonomous Prefecture in the south of the province. He also sells cabbage, which is planted on land borrowed from another family. His family burns straw, wood from his family's trees, dung (collected by four people in the herding area and hauled back with a tractor), and coal (yearly a ton), which he began to purchase in 2004.

The solar cooker saves a total of about seventy kilograms of straw in summer from May to October. Straw is the family's main summer fuel. They also use wood for winter fuel.

The solar cooker positively impacts the children's study, because they have more time to study. The oldest child (a girl) is responsible for making a fire and cooking. The other two children are in charge of bringing straw to her, cleaning the ash from the stove, and carrying it to the manure pile to be used later to fertilize their fields.

The solar cooker is used up to eight hours a day and saves the two hours a day that would be required to burn fuel to cook and heat water in summer. He cultivates poplars, because they require a relatively small amount of space. Last year he planted fifty to sixty poplars provided by the local government. The solar cooker allows them to leave home to do seasonal labor. His seventy-year-old father can adjust the solar cooker and cook for himself and his grandchildren.

He suggested a lighter and more portable cooker with wheels would be an improvement.

In Gram pa nang Village, two kilometers from Ya na gdung Village, some children were chasing each other. One tripped and the metal adjustment handle pierced one of his eyes, blinding him in that eye.

Account Six

25 August 2010. 'Phags mo skyid is a housewife in a family of eight. She is illiterate and her husband dropped out after finishing grade four in primary school. Her family owns four *mu* (0.267 hectares) of land. Last year she made 1,000 RMB by selling turnips in the county town.

Raising four children and caring for her husband's elderly parents prevents her and her husband from leaving home to earn outside income.

'Phags mo skyid's family purchases two tons of

coal per year. They spent 960 RMB on coal purchase in 2009.

Her family bought a cow for 4,000 RMB. Raising a cow requires considerable work, but it produces milk and yogurt for self-consumption. The cow also produces one wood basket of dung daily. She collects the dung, makes it into plate-size patties, dries them in the sun, and later uses them as fuel.

Only pots are designed to fit in the traditional stove. The taste of water boiled in the kettle and in the pots is very different. Water boiled in the kettle on the solar cooker tastes better than water boiled in pots, which tastes dirty, because they cook everything in the same pot.

The solar cooker enables her to make steamed bread on sunny, cloudless days. The solar cooker also makes boiling potatoes easier than in pots on the traditional stove.

Account Seven

27 August 2010. Hrang gzhi ma (b. 1942) lives alone. Making *jara* requires one kilogram of straw. To make baked bread⁶ requires three kilograms of straw and husks. Straw and husks are burned to heat the pot and the lid, which are positioned facing each other. After they are heated, dough is brought and put in the pot, the lid is put atop the pot, and the pot is then covered with smoldering ash and straw for about thirty minutes.

In summer, solar cookers play an important role heating water, making bread, boiling potatoes and meat, and cooking dishes. The dishes are cooked with a small amount of meat tossed into hot oil and such vegetables as

⁶ *Godmoshi* (no standard written Tibetan form) is made in a pot with a thirty-centimeter diameter and eight centimeters thick. Two small handles are attached to either side of the pot.

potatoes, chilies, and cabbage are added.

Account Eight

In the nearby Mdzo rgya Village shrine, the solar cooker, according to the caretaker, is used to melt butter for lamps and firewood is no longer required. He estimated that about three kilograms of wood are saved by the solar cooker per month, because butter lamps are lit only on eight special days per month.

CONCLUSION

Conventional fuels in the form of wood, wheat straw, coal, dung, bushes, and stalks from corn and rapeseed have been and are essential. Their value is revealed through villagers' investment of time and effort—fuel is valued. Villagers worry if their fuel supply is sufficient and the amount and type of each of their fuels as winter nears. The amount to burn for cooking and heating is carefully calculated.

Traditional dependence on organic fuels has been challenged by government policy banning fuel collection in the mountain forest that was mentioned earlier. In response, technology has now come into play. In 2010, about seventy-five percent of village households had solar cookers. Those who lacked solar cookers spend little time in the village because they have homes in the county town where they spend most of their time.

The emotional stress, physical hardships and dangers, and expenses that are part of fuel collection, cooking, and heating for warmth are central to the lives of millions of impoverished rural inhabitants,⁷ as Account One illustrates.

⁷ McCarthy (2010) reports that 800 million people in India and 653 million people in Africa depend on local fuel for cooking.

Much additional research is needed. The accounts given in this paper provide, for example, very different numbers for hours of solar cooker use and fuel-savings. This is related to such factors as the amount of time a family spends in the village, number of people in the home, ability to afford other fuels such as coal, and a lack of clarity on the part of those who provided information for the accounts. Careful research would reveal more precise answers to who use solar cookers, why, and the amount of fuel solar cooker use saves.

Every village family would like to own a solar hot water heater, however, with 2010 prices being around 1,000 RMB per unit, they are too expensive. A cheap, easily installed solar hot water heater would find wide application and further decrease use of organic fuels in villages. Similarly, no villager uses a solar oven. Baked bread is a staple food and an affordable, efficient solar oven would likely find wide usage. Further research might also produce a solar cooking device that is more portable and easier to adjust than the current heavy, parabolic cookers, and generate electricity in addition to cooking.⁸

⁸ See <http://www.oneearthdesigns.org/solsource.html> for a solar energy unit that claims to both cook and generate electricity (accessed 26 October 2010).

FIGURES⁹



Figure One. A solar cooker in a family courtyard.



Figure Two. Bread buns are steamed in a pot heated by burning straw.

⁹ All photographs were taken by Rdo rje don 'grub in Ya na gdung Village in August 2010.



Figure Three. A collection of wood shavings collected from a family's new house that was under construction



Figure Four. Kitchen ceiling and walls blackened by smoke.



Figure Five. Wheat straw in a family courtyard.



Figure Six. Bread bakes in a covered pot underneath smoldering straw and grain husks.



Figure Seven. Cow dung drying in the sun.

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NON-ENGLISH TERMS

'Phags mo skyid འཕགས་མོ་སྐྱིད།
Angla 昂拉, Snang ra སྤང་ར།
Cuoja 措加, Tshag rgyal ཚག་རྒྱལ།
Datong 大通, Gser khog གསེར་ཁོག།
Duojiueduanzhi 多杰端智, Rdo rje don 'grub རྡོ་རྗེ་དོན་འགྲུབ།
Gsang bdag གསང་བདག།
Haidong 海东, Mtsho shar མཚོ་ཤར།
Hrang gzhi ma རྩང་གཞི་མ།
Hualong 化隆, Hwa lung ཧྲཱ་ལུང་།
Huangnan 黄南, Rma lho མ་ལྷོ།
Huihui 回回, Hu'e hu'e ཧཱེ་ཧཱེ།
Jianbaneng 尖八能, Gram pa nang གམ་པ་ནང་།
Jianzha 尖扎, Gcan tsha གཙན་ཚ།
Jianzhatan 尖扎滩, Gcan tsha thang གཙན་ཚ་ཐང་།
kang 炕
Maketang 马克塘, Mar khu thang མར་ཁུ་ཐང་།
Mtsho mo rgyal མཚོ་མོ་རྒྱལ།
mu 亩, mu'u མུ།
Nor bu dbang ldan རོར་བུ་དབང་ལྷན།
Qinghai 青海, Mtsho sngon མཚོ་སྔོན།
Rdor rje རྡོར་རྗེ།
Sgrol mtsho སྐྱོལ་མཚོ།
Snying lo rgyal སྤིང་ལོ་རྒྱལ།
Tu 土, Hor ཧོར།
Xining 西宁, Zi ling ཟེ་ལིང་།
Ya na gdung ཡ་ན་གདུང་།, Yanadong 牙那洞
Yushu 玉树, Yul shul ཡུལ་ཤུལ།

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Zuojia 作加, Mdzo rgyal བཞོ་རྒྱལ།